CLAIMS:

1. A process for producing a pentose-5-phosphate ester, wherein a pentose is reacted with a phosphoric acid donor in the presence of an acid phosphatase.

2. The production process according to claim 1, wherein the pentose is a pentose in (3S, 4R) or (3R, 4S) and the pentose-5-phosphate ester is a pentose-5-phosphate ester in (3S, 4R) or (3R, 4S).

3. The production process according to claim 1, wherein the pentose is ribose, arabinose, 2-deoxyribose or 1-methoxy-2-deoxyribose, and the pentose-5-phosphate ester is a ribose-5-phosphate ester, an arabinose-5-phosphate ester, a 2-deoxyribose-5-phosphate ester or a 1-methoxy-2-deoxyribose-5-phosphate ester.

4. The production process according to claim 1, wherein the phosphoric acid donor is a polyphosphoric acid or a salt thereof.

5. The production process according to claim 1, wherein the phosphoric acid donor is reacted with a pentose under the condition that the phosphoric acid donor is contained more than 1 fold and not more than 20 folds to the pentose by mole.

6. The production process according to claim 1, wherein the acid phosphatase is reacted under the condition that it is contained not less than 1 U/mL.

7. The production process according to claim 1, wherein the acid phosphatase is an acid phosphatase derived from genus Shigella, genus Schwanniomyces or genus Aspergillus.

8. The production process according to claim 1, wherein the acid phosphatase is an acid phosphatase derived from Shigella flexneri, Schwanniomyces occidentalis or Aspergillus ficuum.